Seagate

ST51080 Family:

ST5540A, ST5851A

ST51080A

ATA Interface Drives

Installation Guide

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Introduction

Thank you for choosing a Seagate® drive. The purpose of this guide is to assist you with installing your new hard drive. Its organization outlines the complete installation process from handling the drive in "Before you begin..." to offering troubleshooting suggestions and technical support information. The topics discussed are:

- Handling your drive (see "Before you begin..." on page 3)
- Configuring the drive
- Attaching cables to the drive
- Mounting the drive
- Configuring the computer
- Troubleshooting
- Where to call for Seagate technical support

Seagate provides installation software, EZ-Drive, and a 32-bit disk access driver for Windows, SEG32BIT.386, that allows the computer to surpass the 528-Mbyte barrier when it is imposed. The software is stored on the drive and must be transferred to a diskette in Drive A before you partition and format the drive. A program called Seamove is provided to make the transfer easy.

We hope your installation goes smoothly, but if complications arise, a list of common symptoms and solutions is provided in the troubleshooting section. If the problem persists, contact your dealer first. Your dealer is familiar with system integration and the conflicts that may arise. If you need additional help or information about Seagate products, numbers for Seagate technical support services are listed on pages 37–39.

Drive features			
Model	**ST5540A**	**ST5851A**	**ST51080A**
Formatted Capacity Mbytes	541	854.6	1,083
Cylinders	1,050	1,656	2,100
Heads	16	16	16
Sectors	63	63	63
Average seek time	10.5 msec		
Cache (segmented)	256 Kbytes		
Spindle speed	5,376 RPM		
External transfer rate	16.6[1] Mbytes per second max.		
Average sustained transfer rate	3.5[1] Mbytes per second		
LBA	Supported		
Multiple block read/write	Supported		
PIO modes	0, 1, 2, 3, 4		
Multiword DMA	0, 1, 2		
Power-management	Supported		
Data streaming	Supported		

1. To achieve optimal performance, your computer must support PIO mode 4 or multiword DMA mode 2. If these modes are not supported, you can upgrade your system with a host adapter that supports them. Ask your computer reseller for details.

Before you begin...

Application. Your Seagate drive is designed for IBM AT and compatible personal computers. It uses the ATA interface. It is intended for use with UL-listed computers or similar products.

Drive handling. Your drive is vulnerable to damage from rough handling and static discharge. Do not drop your drive. Do not remove the seals and labels on the drive. The drive warranty is voided if the seals and labels are removed.

Static discharge. Your drive contains components that can be damaged by static discharge. Static damage can be cumulative and may not manifest immediately. Observe these precautions:

- Ground yourself before handling the drive. Wear a ground strap that is properly connected to earth ground, or touch the metal of a power supply that is plugged into a wall outlet while handling the drive.
- Keep the drive in its antistatic bag until you are ready to install it. Do not attach any cables to the drive while it is in its bag.
- Handle the drive gently and only by its edges or frame. Place it on an antistatic surface until you are ready to install it.
- Do not touch the drive's connector pins or printed circuit board.

Inspection. Use the handling precautions listed above when you inspect the drive. If it appears to be damaged, call your distributor or dealer immediately.

Warranty. Your drive comes with a three-year limited warranty.

Note. With regards to the EZ-Drive and SEG32BIT software, there are no warranties, express or implied, including, but not implied, warranties of merchantability or fitness for a

particular purpose. All such warranties are expressly and specifically disclaimed.

Maintenance and repair. Seagate drives do not require maintenance. The head/disc assembly is sealed; a broken seal voids the warranty. Seagate customer service centers are the only facilities authorized to repair Seagate drives. Seagate does not sanction any third-party repair facilities.

Sicherheitsanleitung

1. Das Gerrät ist ein Einbaugerät, das für eine maximale Umgebungstemperatur von 55°C vorgesehen ist.
2. Zur Befestigung des Laufwerks werden 4 Schrauben 6-32 UNC-2A benötigt. Bei seitlicher Befestigung darf die maximale Länge der Schrauben im Chassis nicht mehr als 3,3 mm und bei Befestigung an der Unterseite nicht mehr als 5,08 mm betragen.
3. Als Versorgungsspannugen werden benötigt:
   +5V æ 5% 0,6A
   +12V æ 5% 0,8A (1,9A fur ca. 30 Sek. fur æ 10%)
4. Die Versorgungsspannung muss SELV entsprechen.
5. Alle Arbeiten auf dem Festplatte dürfen nur von Ausgebildetem Servicepersonal durchgeführt werden. Bitte schaffen Sie Festplatteetiketten nicht weg.
6. Der Einbaudes Drives muss den Anforderungen gemäss DIN IEC 950V DC 0805/05.90 entsprechen.

Warning. Turn off the computer before you remove its cover. Turn off the power before you install or remove any adapter card or the drive.

Caution. Special training or tools may be required to service laptop computers. Removing the cover may void your warranty. Review the terms and conditions of your warranty before removing the cover.

Configuring the drive

Required materials:

- 2-mm jumper connector (supplied as spare jumpers)

Your Seagate drive is configured using the options jumper block shown in Figure 1 on page 6. The option settings are shown in Figure 2 on page 7. You can configure the drive:

- For one- or two-drive operation.
- To be the master or slave drive.
- To operate as the master with drives that use a different master/slave timing protocol.
- For computers that use cable-select.
- To use a remote drive-activity LED.

To configure the drive, attach a jumper to the pins on the options jumper block for the desired option. The configuration options are:

Spare jumper. Spare jumpers are provided on pins 2 and 4 and on pins 6 and 8 for configuring your drive. These settings are not used to configure the drive. The jumper is a 2-mm connector. Using a larger connector can damage the jumper block pins.

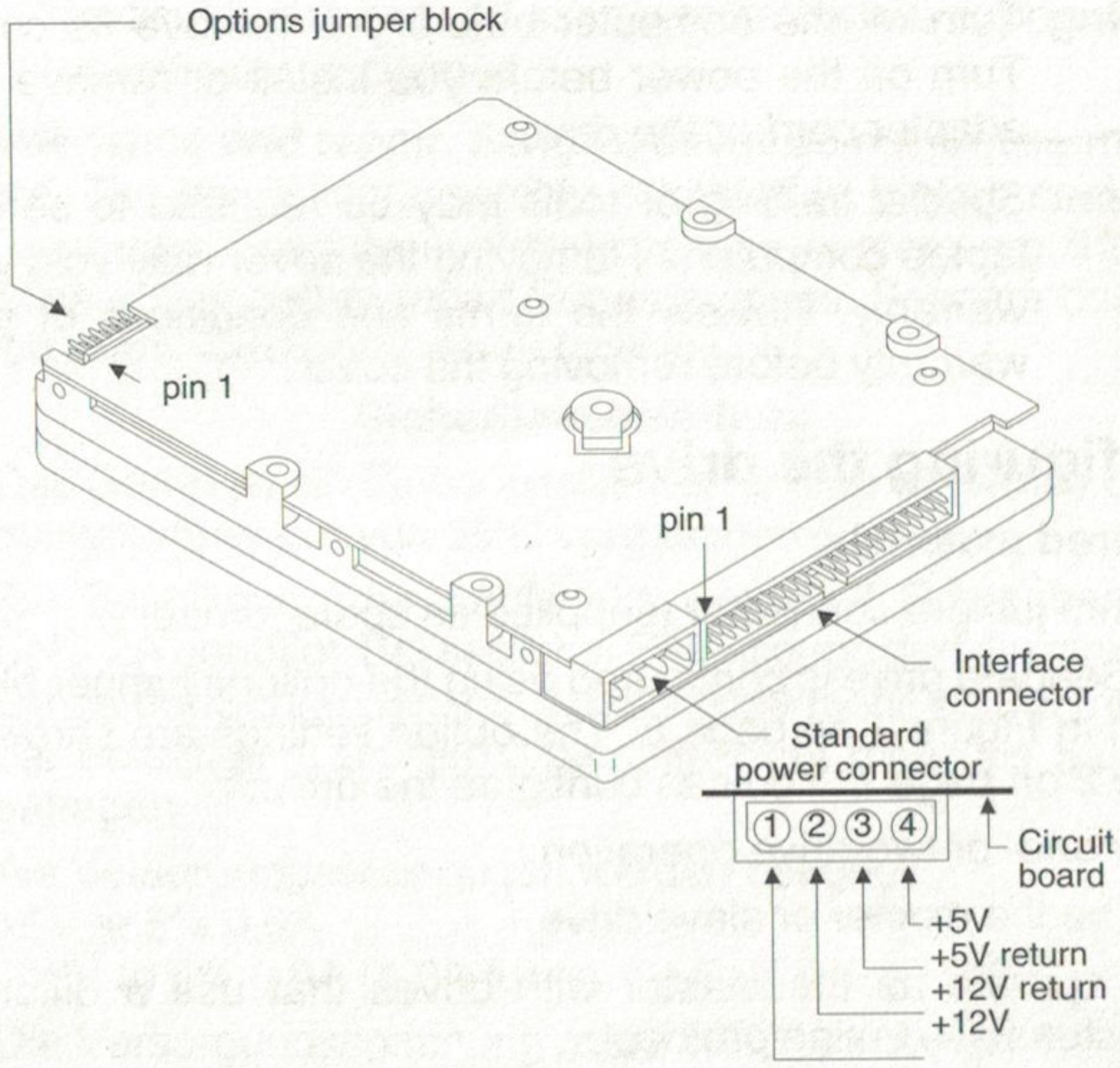

Figure 1. Drive connectors

One-drive only. Use this configuration if there are no other drives attached to the hard disc controller.

Master with slave present. Use this configuration if the drive is the first of two drives in your system. The master drive is Drive 0 in the System Setup record.

Slave. Use this configuration if the drive is the second drive in the system. The slave is Drive 1 in the System Setup record.

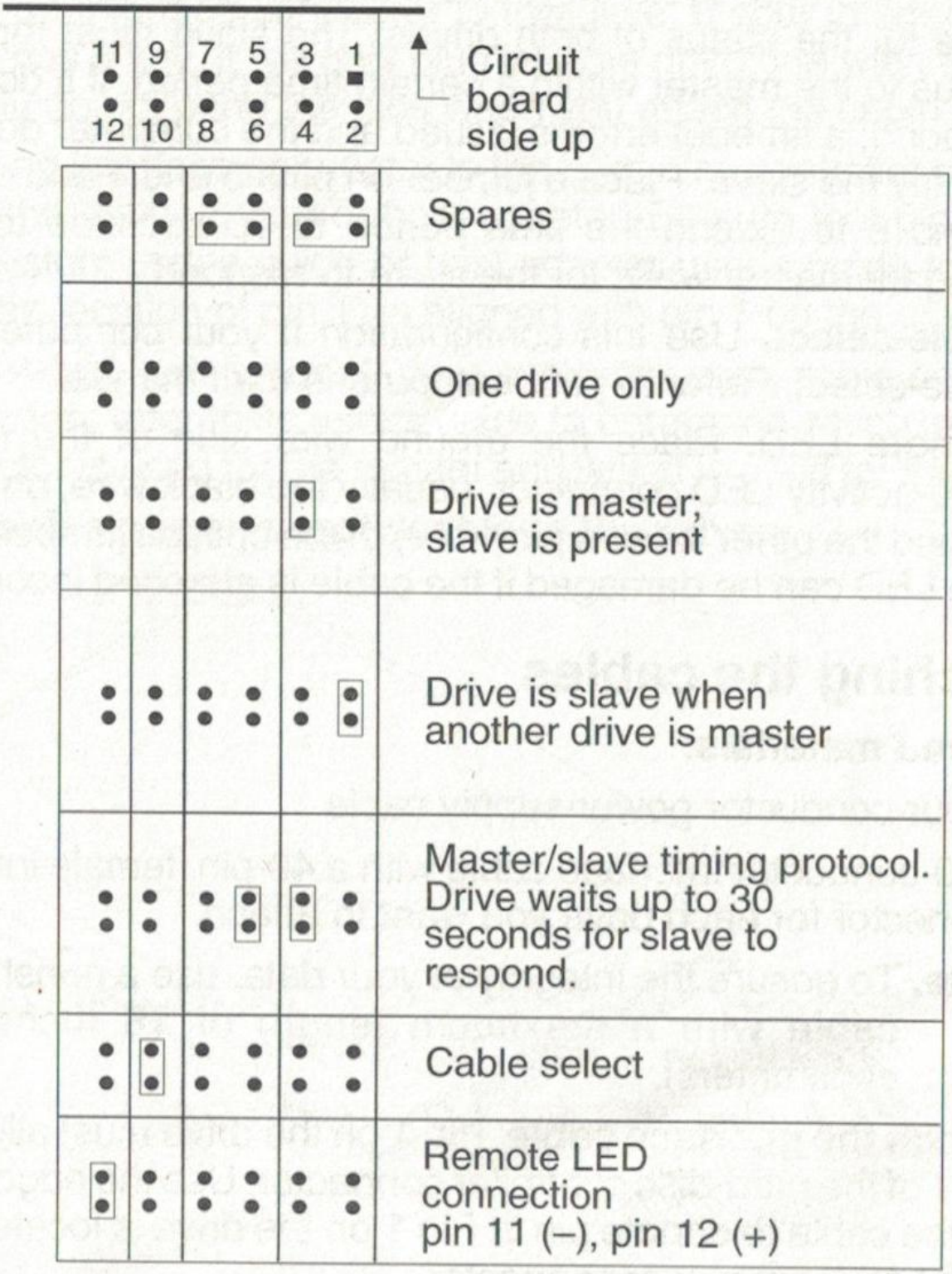
11 9 7 5 3 1
12 10 8 6 4 2
Circuit board side up
Spares
One drive only
Drive is master; slave is present
Drive is slave when another drive is master
Master/slave timing protocol. Drive waits up to 30 seconds for slave to respond.
Cable select
Remote LED connection pin 11 (–), pin 12 (+)

Figure 2. Options jumper block settings

Master/slave timing protocol. This protocol involves the communication between the computer and the disc drives during the boot cycle only. The computer queries the master drive for the status of both drives. The slave must report its status to the master within a certain time period. If it does not respond, a timeout error is issued and the computer does not identify the slave. Place a jumper on pins 3 and 4 and on pins 5 and 6 to extend the time period to 30 seconds that the Seagate master waits for the slave to respond.

Cable-select. Use this configuration if your computer uses cable-select. Refer to your computer's user manual.

Remote LED. Place the ground wire side of the remote drive-activity LED connector, usually the black wire, on pin 11 (–) and the other side on pin 12 (+) of the options jumper block. The LED can be damaged if the cable is attached incorrectly.

Attaching the cables

Required materials:

- A four-conductor power-supply cable
- A 40-conductor interface cable with a 40-pin, female interface connector for each drive you want to attach.

Note. To ensure the integrity of your data, use a nonshielded cable with a maximum length of 18 inches (46 centimeters).

1. **Attach the interface cable.** Pin 1 on the drive must align with pin 1 of the hard-disc controller connector. Use the edge-stripe on the cable to denote pin 1. Pin 1 on the drive is located next to the four-pin power connector.

Caution. The cable and connector bond is delicate. Pulling the cable to remove the connector may damage the cable.

Attach an interface connector to the drive. If your interface connector has a key, it will only plug into the drive one way. Be sure that you do not bend the pins when you attach the cable.

Attach an interface-connector to the hard-disc controller connector on the motherboard or host adapter. Be sure that pin 1 (see your system user's guide or host adapter user's guide to determine the location of pin 1) is aligned with pin 1 on the drive.

Cable-select installation: If your computer uses cable-select for connection, refer to its user's guide to determine which interface connector is used for the master and which is used for the slave.

2. Attach a power-supply cable to the drive.

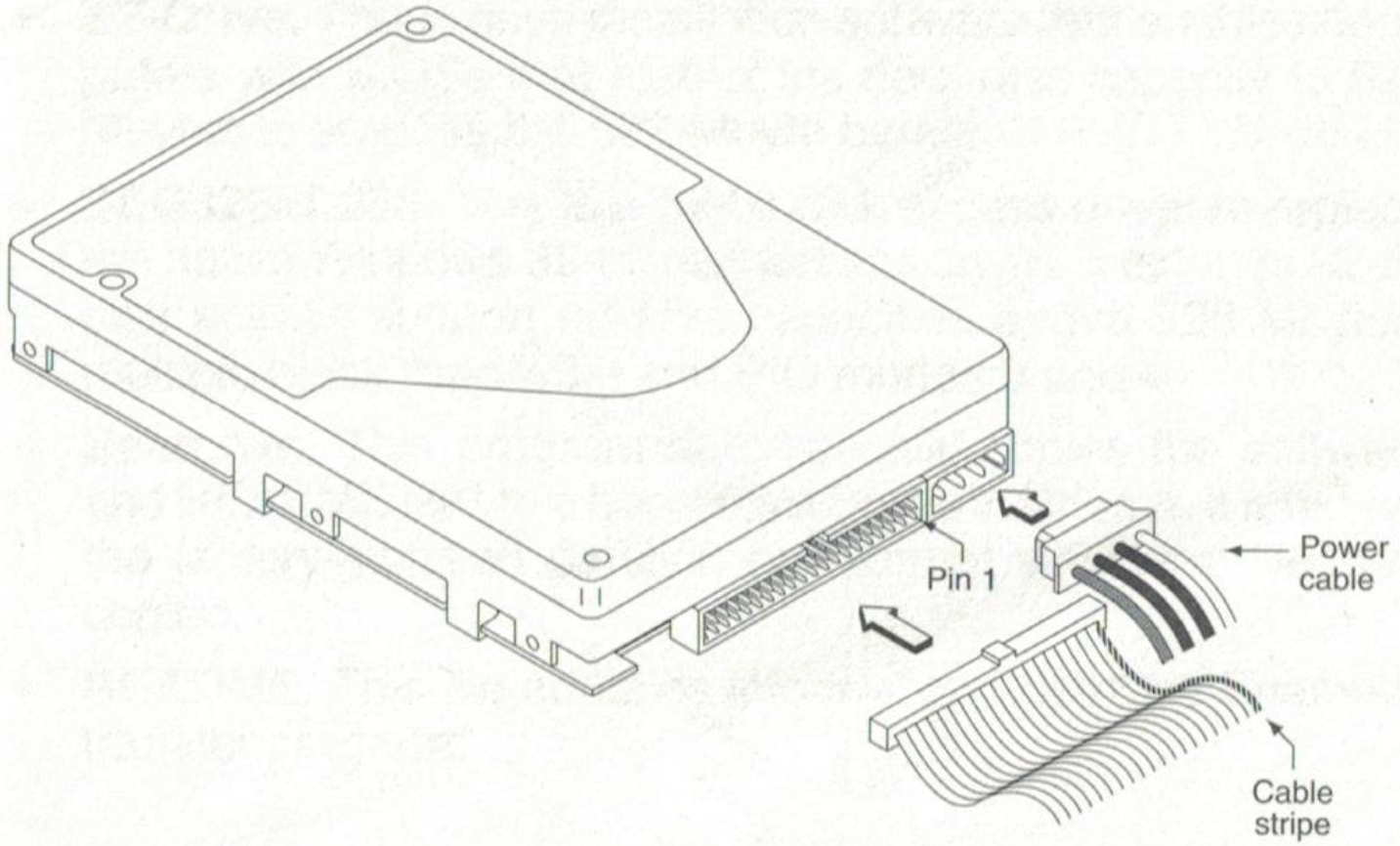

Figure 3. Attaching cables to the drive

Mounting the drive

Required materials:

- Four 6-32 UNC-2A screws (not included)

The drive fits in the standard 3.5-inch bay and can be mounted in any orientation. Position the drive so that the cables are not strained or crimped. Secure it with four mounting screws not more than 6 full turns (0.20 inches) into the drive frame (see Figure 4).

Caution. To prevent drive mounting-hole damage, use only the type of screws specified.

This completes the hardware installation.

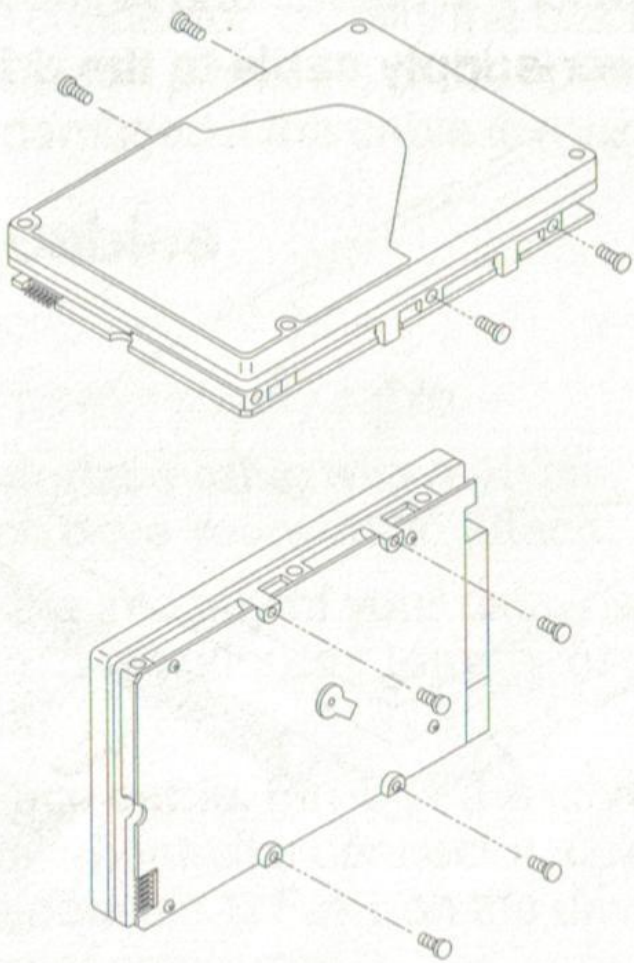

Figure 4. Mounting holes

Transferring the software from the drive

Required materials:

- Diskette Drive A
- A bootable, blank diskette that can be used in Drive A
- A bootable diskette with the Format command

Recent developments in drive technology have pushed drive capacities beyond the limits many older computers using DOS can address. Seagate provides software that allows these computers to surpass the address limit and access your new drive's full capacity. The software is stored on the drive at the factory and must be transferred to a diskette in Drive A before you partition and format the drive. The files stored on the drive include:

- **EZ-Drive.** This is drive installation software that enables computers with BIOSs that restrict the hard disc capacity to 528 Mbytes to surpass the 528-Mbyte barrier.
- **SEG32BIT.386.** This is a 32-bit disk access driver to replace the native Windows 32-bit disk access driver. It extends 32-bit disk access support to drive capacities above 528 Mbytes, multiple block read/write and PIO modes 3 and 4.
- **Seamove** This program automatically copies the software and README files to a bootable diskette in Drive A. It removes the factory-installed partition and format when the files are copied.
- **README.** This file contains information about the Seamove transfer program.

To transfer the software, you must put a blank, bootable diskette into Drive A. To create a bootable diskette:

1. Insert your DOS diskette into Drive A.
2. Type **format a: /s**.

   The drive reads the DOS diskette and prompts you to insert the diskette you want to format into Drive A.
3. Insert the blank diskette. Press ENTER. When the format is complete, you can transfer the installation software files to the diskette.

To transfer the software files:

1. Boot the computer with the diskette to which you want to transfer the software files.
2. Enter the System Setup. (Refer to your computer user's guide. System Setup may be called Setup, BIOS Setup or CMOS Setup.) If your computer uses an automatic setup system, go to step 5.
3. Find the hard disc configuration in the System Setup screen.
4. Select drive type 2 for your new Seagate drive. If your computer does not offer drive type 2, use the following values: 615 cylinders, 4 heads and 17 sectors.

   Note. These are interim drive-type values that allow you to access the drive for extracting the installation files.
5. Activate the prompt for the Seagate drive.
6. Type **seamove** and press ENTER.

   This command transfers the files from the drive to the diskette in Drive A. When the transfer is complete, the Seamove program erases the files and the drive partition and reboots

the computer. The computer returns an invalid drive specification error if you try to access the drive.

Caution. Do not write-protect the Seagate software diskette with EZ-Drive. The EZ-Drive program writes important information back to the diskette during the installation.

Configuring the computer

Configuring the computer involves updating the computer's System Setup records with the new drive's translation geometry (cylinder, head and sector information) and partitioning and formatting the drive. The translation geometry is kept on the CMOS chip and is used by the BIOS to assign locations for the data on the drive. Many older BIOSs place limits on the translation geometry parameter values that do not allow it to assign locations above 528 Mbytes when DOS is used. If your computer uses such a BIOS, it cannot access the full capacity of your new drive.

This section covers the following issues involved with configuring your computer:

- How to tell if your computer can access your new drive's full capacity
- Solutions you can use to surpass the 528-Mbyte barrier
- Installing the drive using the EZ-Drive software
- Installing the drive using the Standard setup
- Replacing the Windows 32-bit disk access driver

Determining whether your BIOS accepts more than 528 Mbytes

The following suggestions can help you to determine whether your BIOS limits the drive capacity to 528 Mbytes.

- If you are using a 286 or 386 computer, the native BIOS will not recognize more than 528 Mbytes.
- If the copyright date of the BIOS is earlier than 1994, it probably will not recognize more than 528 Mbytes. The BIOS copyright date, manufacturer and version number appear on your screen at the beginning of power-on or reboot.
- Install the drive using the Standard setup described on page 19. (Transfer the free software stored on the drive to a diskette before you start the installation. See page 11 for transfer instructions.) When the installation is complete, type **dir** ***d:*** for the new drive, and check the number of bytes free. The number should be close to the formatted capacity of your drive. If the number is less than 528 Mbytes, you need to consider some alternatives for surpassing the 528-Mbyte barrier. Some alternatives are listed below.

Solutions for surpassing the 528-Mbyte barrier

- Use the free installation software, EZ-Drive, that is stored on the drive at the factory or equivalent software. Instructions for transferring the software to a diskette are on page 11. Instructions for using EZ-Drive are on page 15.
- Upgrade the BIOS to one that supports more than 528 Mbytes. Such BIOSs incorporate logical block addressing (LBA) and extended cylinder-head-sector (CHS) addressing.
- Use a host adapter that supports more than 528 Mbytes.

Using the EZ-Drive installation software

Note. The EZ-Drive software is authorized for installation only with the drive on which it is shipped.

EZ-Drive allows your computer to access your Seagate drive's full formatted capacity. It bypasses the BIOS during the boot sequence and uses information it creates on Drive C to identify the drive before DOS is loaded. During the installation, EZ-Drive:

- Determines how many drives are installed.
- Enters a drive-type in System Setup for the new drive.
- Modifies the Drive C boot record with translation geometry for the new drive.
- Partitions and formats the new drive.
- Copies the boot files to the new drive if it is Drive C.
- Enables Maximum Overdrive, which enables read/write multiple in drives that have this feature. The Change Installed Features option that appears in the dialog box when the format is complete allows you to disable Maximum Overdrive.

EZ-Drive is easy and safe to use. You can choose the fully-automatic installation, which puts a single partition on the drive, or you can install the drive with multiple partitions and other custom features. Online help is provided for selected topics when you press F1. Online help is also available in the main menu as Information Help.

If you already have a drive installed, EZ-Drive will not harm your data unless you instruct it to override that drive's partition and format. EZ-Drive automatically arranges the drive-type position in System Setup to reflect how you have physically configured

the drives.

Note. EZ-Drive is designed for DOS installations. It supports Microsoft MS-DOS Version 5.0 or later.

EZ-Drive allows you to have full access to your drive in DOS when other operating systems are loaded on the drive. You must install the drive with EZ-Drive and DOS before loading the other operating system. (See the Information Help option in the software for more information on installing other operating systems.)

EZ-Drive does not support:

- Toshiba laptops, XT or Micro Channel computers
- Non-ATA hard drives (SCSI, ESDI, MFM and RLL)

Caution. Some older virus-detection programs may misidentify the EZ-Drive information stored in conventional memory as a virus. If all 640 Kbytes of conventional memory are not free, such programs assume a virus is present and clean and restore the memory. If this happens, information about the EZ-Drive installed drive is destroyed and the drive cannot be identified by the computer. Do not use these programs.

Note. The Seagate version of EZ-Drive cannot install a non-Seagate drive without a Seagate drive present.

1. Boot your computer with the Seagate software diskette with EZ-Drive. This is a precaution to ensure that the EZ-Drive installation does not conflict with any terminate-and-stay resident (TSR) programs that may be in memory.
2. Type **ez** and press ENTER.

3. The Notice dialog box will tell you how to access the license agreement for EZ-Drive. The software is authorized for installation only with the drive on which it is shipped. If you agree to the terms, press ENTER to continue.
4. Locate the Identified drives dialog box at the bottom of the screen. It lists the model number of each drive EZ-Drive finds in your system. If a drive you have installed is not listed or if the drive order (Drive 0 is the master, Drive 1 is the slave) is incorrect or if there is a drive not identified message, make sure the master and slave jumpers are set correctly on the drives and the I/O and power cables are properly connected.

Note. Other troubleshooting tips are available in the Information Help menu.

Caution. Turn off your computer before resetting the jumpers or removing the cables.

5. If the drives are correctly identified, select Fully Automatic Installation in the Main menu dialog box above. This creates a single partition and formats the drive.

   If you are installing the drive as Drive C, EZ-Drive automatically writes the system files to the drive to make it bootable.
6. When the format is complete, the Options dialog box appears. We want to call your attention to two of the options in particular: Create Recovery Disk and Change Install Features.

   Create Recovery Disk saves the boot information EZ-Drive uses to load your drive on a diskette. You can use the diskette to restore the EZ-Drive boot information on Drive C if the information is corrupted and you cannot access the drive. Use a blank diskette to create the recovery disk. We recommend

Model	CHKDSK Mbytes[2]	Translation geometry			CMOS (Setup) Mbytes[3]
		Cyl	Heads	Sectors per track	
ST5540A	541.9	1,050	16	63	517
ST5851A	854.6	1,656	16	63	815
ST51080A	1,083.8	2,100	16	63	1,034

Note. CHKDSK and CMOS capacities are approximations. The capacities your computer reports may vary slightly.

If none of the standard drive types offered in System Setup match the translation geometry of your Seagate drive, select the *user-defined or custom* drive type, if available, and enter your drive's translation geometry.

If a user-defined drive type is not offered, select a drive type that approximates, but does not exceed, the *CMOS (Setup) Mbytes* capacity in the translation geometry table above.

Note. The drive does not use write precomp and landing zone. If these parameters are listed, make their values zero.

If you upgrade your system at a later date to achieve the drive's full capacity, you must repartition and reformat the disc. Be sure to back up your data first.

5. When you have completed setting the translation geometry for your drive, save the values and exit System Setup. Reboot your computer. Partition and format the drive.

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2. One Mbyte equals 1,000,000 bytes.

3. One Mbyte equals 1,048,576 bytes.

Partitioning and formatting the drive

Before you can use your Seagate drive, you must partition and high-level format it. In this guide we discuss formatting your drive with DOS—refer to your DOS user's guide for assistance. If you are using another operating system, consult your operating system user's guide for formatting instructions.

Note. If you have not copied the free installation software to a diskette, your computer will detect a partition on the drive. Only the first two cylinders are formatted at the factory to store the software files. You must erase this partition before you can access the full drive capacity. You can either transfer the files to a diskette—the partition is erased when the transfer is complete—(see page 11 for instructions) or partition and format the drive as described below.

Low-level formatting

The drive is low-level formatted at the factory using 512 bytes per sector. Low-level formatting is not required.

Partitioning

You must partition the drive into one or more logical drives before you can use it.

Caution. Partitioning or formatting a drive at any level erases all data on it. Make a backup copy of your existing files on another drive before you repartition or reformat. Seagate assumes no liability if you erase your data.

You can partition a drive as follows:

1. Insert a bootable diskette into Drive A. Turn the computer on.
2. After the computer has completed booting, remove the boot

diskette from Drive A. Insert a diskette that has the FDISK utility into Drive A and type **fdisk**. Press ENTER.

Note. If you have two drives in your system, the menu displays five options. Option five allows you to select the drive you want to partition. Make sure you select the correct drive.

3. Select *create DOS partition or logical DOS drive*. Press ENTER.
4. Select *create primary DOS partition*. Use the maximum available size for your primary partition and make the partition active for Drive C. This puts the entire drive on one partition and allows you to load the DOS boot information on the drive. Press ENTER for each subsequent selection.

After all of the appropriate selections are made, the computer reboots itself. You must place a bootable diskette into Drive A.

High-level formatting

High-level formatting verifies the information written by the low-level format and builds the file allocation table (FAT) used by DOS to access files on the drive. If you put more than one partition on the drive, you must high-level format each partition. Refer to your DOS reference guide for instructions. Use the DOS FORMAT utility to high-level format the drive as follows:

1. Type the following command at the DOS prompt:

   format *drive:* /v /s

   drive: designates the drive you are formatting. If you are formatting the boot drive or if your system contains only one drive, type **c:**. To format a second drive, type **d:**.

   /v tells the computer to create a volume label for the partition after it is formatted. Labeling can prevent someone from

accidentally deleting the partition and losing your data.

/s tells the computer to copy the necessary system files to the drive to make it bootable.

2. When the computer prompts you for a volume label, you can assign a name to the drive volume of up to eleven characters or leave it blank. Press ENTER.

Windows 32-bit disk access

If 32-bit disk access is enabled during the Windows installation, an error message appears when you load Windows after you have installed a drive that has more than 528 Mbytes. The Windows 32-bit disk access driver must be turned off for you to open and use Windows. Use the Seagate replacement driver to restore 32-bit disk access capability. To open Windows and restore 32-bit disk access:

1. Press ENTER to open Windows.
2. Open the Main menu.
3. Open the Control Panel.
4. Open Enhanced.386.
5. Select Virtual Memory.
6. Select Change.
7. Select 32-Bit Disk Access at the bottom of the screen to change its status.
8. Select OK. Follow the screen instructions to reboot.

You can re-establish the 32-bit disk access capability using the SEG32BIT software as follows:

1. Load Windows.

2. Open the Program Manager menu and select File.
3. Select Run.
4. Load the Seagate software diskette.
5. In the command line box, type: **drive:stsetup**
6. Read the license agreement that appears on the screen. If you agree to the terms, select ACCEPT AGREEMENT to continue.
7. The next screen lists the features the SEG32BIT.386 driver supports. If your computer supports these features, they will be active in 32-bit disk access mode with SEG32BIT.386 for all drives that support them. Select Install Driver to continue.
8. Once the driver is installed, you must enable the 32-bit disk access option in the Windows control panel to make it operational. You can choose to enable the option now or later. If you choose to enable the driver now, the program opens the Windows main menu. Repeat steps 3 through 7 to enable SEG32BIT 32-bit disk access.

Basic troubleshooting

Warning. Always turn off the computer before changing jumpers or unplugging cables and cards.

Caution. Your drive and computer contain static-sensitive devices. Wear a ground strap or take other antistatic precaution while handling your drive.

If you have installed your drive and it does not function properly, perform the following basic checks.

- **Verify compatibility.** Verify that the host adapter and the drive are appropriately matched to each other and to your computer. Refer to relevant documentation for details.
- **Check all cards.** Verify that all cards are seated in their slots on the motherboard and are secured with mounting screws.
- **Check all cables.** Make sure all ribbon and power cables are securely connected. Ribbon cables are easily damaged, especially at the connector. Try a new cable or a known good cable. Make sure no socket pins were bent when the cable was inserted. For each cable, verify that cable-connector pin 1 is aligned with equipment-connector pin 1. The edge-stripe on the ribbon cable is used to denote pin 1.

  Caution. Do not reverse-plug connectors. This can damage the computer and the drive.

- **Verify equipment configuration.** Review the instructions in this guide and the host adapter installation guide and make sure that all appropriate jumpers are installed, or removed, to suit your application.

- **Check the power-supply specifications.** If new devices are installed, your computer's power supply may not support the new total power requirement. Consult your dealer.
- **Verify the drive type setting in System Setup.** The drive type stored in CMOS memory by your System Setup program must not exceed the physical specifications of your drive. Also, if you have a large-capacity drive, the translation geometry settings must not exceed the limitations set by the operating system and BIOS.
- **Check for viruses.** Before you use someone else's diskette in your system for the first time, scan the diskette for viruses.

Advanced troubleshooting

If you have performed the preceding basic checks but the problem has not been solved, follow these guidelines for troubleshooting specific cases:

The system does not recognize the drive.

- Check all cables.
- Make sure the power supply is adequate for system needs.
- Reboot the computer and make sure the drive motor runs. If your drive is very quiet, it may be difficult to hear its discs reach operating speed. Recheck all drive cables if the drive is not running.
- Verify the System Setup drive type values. Each drive present must be represented in System Setup.
- Try a warm boot (a reboot without turning off computer power). To do this, press CTRL, ALT, and DELETE at the same time.

  If the drive is recognized after the warm boot, the computer

BIOS' setup test may be completing before the drive is ready.

One possible solution is to slow your computer's processor speed during startup. If your computer has a turbo switch, set it to slow speed before turning the computer on. If there is no turbo switch, you may be able to use keyboard commands to slow the processor speed; see your computer manual for details. After the computer is up and running, return the processor to the fast speed.

Another solution is to warm-boot your computer after every power-on.

- Check for I/O address conflicts. To isolate the conflict, first verify that the drive and host adapter are compatible with your computer by removing all the peripheral adapter cards (power must be off) except for the video card. Then reinstall the drive and host adapter card. If this is successful, reinstall the other peripherals one at a time until the conflict reoccurs.

  After you have isolated the source of the address conflicts, you can resolve the conflict by changing the I/O address of the peripheral that appears to cause the conflict.

- If your drive was installed with EZ-Drive, the special instruction in the boot sequence on Drive C may have been bypassed. Remove the diskette and reboot. The section "Booting with a diskette after EZ-Drive is installed" on page 19 describes how to boot with a diskette.

- If the computer does not recognize the slave drive following power-on, the slave may not be communicating with the master during the boot cycle. Try reconfiguring the master/slave timing protocol jumpers discussed on page 8.

The dealer partitioned and high-level formatted the drive for you in the store. Later, you installed the drive and it does not respond.

- Reboot the computer and make sure the drive spins up.
- Check all cables.
- Make sure the power supply is adequate for system needs.
- Use the same version of DOS within all partitions. Make sure the DOS version the dealer used to partition and high-level format the drive is the same as the version you have installed on your computer. If it isn't, see your dealer.
- Verify the System Setup drive type value. You must install the drive using the same drive type or translation geometry that your dealer used to partition the drive.
- Check for I/O address conflicts between peripheral cards.
- Check for viruses.

The screen remains blank when you power up the system.

- Make sure the monitor is plugged in and turned on.
- Check all cards. Make sure the video card is seated in its slot and secured with mounting screws.
- Check all cables. Make sure the video-card cables are securely attached.
- While the computer is powered down, remove the drive host adapter. If the screen turns on after you reboot, the host adapter may be incompatible or defective. If so, see your dealer.

The system hangs in FDISK or fails to create or save the partition record.

- Check all cables.
- The DOS utilities diskette may be corrupted. Try your backup DOS diskette.
- Make the partitions smaller.
- Try another drive type or translation geometry. The computer's BIOS may not accept a particular translation geometry for writing into the CMOS setup memory.
- Change the interrupt jumper setting on the host adapter.
- Check for media defects at the beginning of the drive. Use a third-party surface scan utility.
- Some BIOSs have a Track 0 protection feature that protects Track 0 from viruses. This can cause FDISK to hang the system. You must disable this feature in System Setup before you can use FDISK. See your computer reference guide for assistance. Be sure to re-enable this important feature when FDISK is done.

System error message, "Drive not Ready," appears.

- Check all cable connections. For each ribbon cable, verify that pin 1 of the cable is matched to pin 1 of the connector. Pin 1 is usually denoted by the edge-stripe on the ribbon cable.
- Make sure the power supply is adequate for system needs.
- Reboot the computer and make sure the drive spins up. The FDISK error message, "No Fixed Disk Present," appears.
- Check all cables.
- Make sure the power supply is adequate for system needs.

- Reboot the computer and make sure the drive spins up.
- Verify the System Setup drive type values.
- Check for I/O address conflicts.

The drive does not format to full capacity.

- Verify your computer's System Setup drive type values. One of the following problems may have occurred: 1) the values may be set for an incorrect drive type or translation geometry; 2) you may have entered a parameter value that exceeded the physical capacity of the drive; 3) you selected a translation geometry or drive type that does not take full advantage of the drive's capacity; or 4) the drive's physical specifications exceed the translation geometry limits imposed by the BIOS. Refer to "Standard setup" on page 19 if any of these cases is true.

  If you reset the System Setup drive-type value, you must partition and high-level format the drive again.
- If you partitioned the drive into individual logical drives, you may need to make the partitions smaller so that the computer can use all of the drive's capacity.
- If your computer supports LBA mode, you may need to enable an LBA mode function in System Setup to get the drive's full capacity. Refer to your computer's reference guide.
- You can use the EZ-Drive software to install the drive.

DOS messages "Disk Boot Failure," "Non-System Disk," or "No ROM Basic - SYSTEM HALTED," appear.

- Reinstall the DOS system files using the DOS SYS utility.
- Check all cables.

- Use FDISK to verify that the primary partition is active.
- Check for viruses.

System error message, "HDD controller failure," appears.

- Confirm the jumper settings on the drive.
- Verify the System Setup drive type values.

The error message "Microsoft Windows 32-bit disk driver (WDCTRL) phase 03, 3f" appears when you open Windows.

- A device conflict occurs between the native Windows 32-bit disk access driver and drives that are larger than 528 Mbytes. To get the advantages of 32-bit disk access and more, install the SEG32BIT 32-bit disk access driver. Installation instructions are on page 23.

Disabling EZ-Drive

To disable EZ-Drive, you must replace the EZ-Drive boot information on Drive C with the DOS master boot record. The DOS master boot record uses the information in System Setup to access the drive. Your computer will stop accessing EZ-Drive-installed drives that are larger than 528 Mbytes. You must reconfigure System Setup with the translation geometry your drive requires to make it accessible again.

Two methods of disabling EZ-Drive are available: EZ-Drive Uninstall and FDISK/MBR. EZ-Drive Uninstall provides a means for disabling EZ-Drive for large drives without losing access to or corrupting your data. It suggests translation geometries you can use to configure System Setup and tests the new configuration to make sure it is compatible with the translation geometry EZ-Drive uses before it will disable EZ-Drive. If the test fails, it will not disable EZ-Drive.

FDISK/MBR replaces the EZ-Drive boot information on Drive C with the DOS master boot record. If the drive is larger than 528 Mbytes, you must reconfigure System Setup and repartition and reformat the drive to make it accessible. Your data will be lost.

Caution. Back up your data files before you disable EZ-Drive. Your files can be lost or corrupted.

Using EZ-Drive Uninstall

Required materials:

- Seagate software diskette with EZ-Drive
- A BIOS that can access more than 528 Mbytes

1. Turn the computer off.
2. Insert the Seagate software diskette with EZ-Drive into Drive A and turn the computer on. Your computer must boot to Drive A without loading EZ-Drive into the system memory.
3. Type **ez** and go to the Main menu.
4. Select Installation Options and press ENTER
5. Select Change Install Features and press ENTER
6. Select Uninstall EZ-Drive from Hard Disk and press ENTER.
7. The Uninstall Warning dialog box appears on the screen. If you want to continue with the uninstall, type **yes** in the box at the bottom of the dialog box. You must type the whole word.

8a. Automatic configuration. If your computer has automatic configuration, it may reconfigure System Setup when you boot to Drive A. Uninstall may automatically go into its verification routine to make sure that the new translation geometry in System Setup is compatible with the translation geometry EZ-Drive uses. Note the cylinder, head and sector

numbers given at the top of the dialog box. Write these numbers down. If Uninstall finds the geometries are compatible, it will replace the EZ-Drive boot code with the DOS master boot record, and you will be able to access your drive and your files. If the geometries are not compatible, Uninstall will not replace the boot code. Try entering the geometry that appeared in the dialog box in System Setup manually. (Go to step 10 on page 34.)

If the uninstall is successful, a dialog box appears providing you the opportunity to create a recovery diskette in case a problem occurs and you need to reinstall EZ-Drive to access your data. We recommend that you take this opportunity to create the recovery diskette. You need a blank diskette for the operation.

8b. Manual configuration. If your computer does not use an automatic configuration routine to set the translation geometry in System Setup, a series of dialog boxes appears discussing Uninstall with EZ-Drive. Note how each dialog box tells you how to proceed to the next dialog box. Go to the EZ-Drive Uninstall Information dialog box. Locate the three translation geometries listed in the bottom half of the dialog box. They are labeled:

Drive 0: Actual

Drive 0: As indicated in CMOS

Drive 0: As you may need to set in CMOS

Write these geometries down. You will use them to manually configure System Setup. The *Actual* translation geometry is the number of cylinders, heads and sectors the drive has. The *As indicated in CMOS* translation geometry is the ge-

ometry EZ-Drive enters into System Setup during the installation to satisfy the BIOS requirement that a translation geometry be listed. This geometry does not yield the full capacity of your drive. If you must use this geometry, the effective capacity of your drive will be less than 528 Mbytes. The *As you may need to set in CMOS* translation geometry is an equivalent of the actual translation geometry. Using this translation geometry yields the full capacity of the drive.

When you have copied the three translation geometries, press any key to continue to the Uninstall Warning dialog box.

9. Read the Uninstall Warning dialog box thoroughly. It explains that your computer may hang if EZ-Drive cannot uninstall itself using the translation geometry you enter into System Setup.
10. Reboot the computer and open System Setup.
11. Set the translation geometry. Try the *Actual* geometry first. (See Standard setup on page 19 for instructions on how to manually configure System Setup.)
12. Boot the computer to Drive A. EZ-Drive must not load into the system.
13. Type **ez** and press ENTER
14. Return to the Uninstall EZ-Drive from Hard Disk option in the Change Install Features menu and press ENTER
15. Type **yes** in the Warning dialog box.
16. EZ-Drive runs a test to make sure that the translation geometry you entered in System Setup is compatible with the translation geometry it uses. The test takes several minutes, depending on the size of the drive. If EZ-Drive determines

that the geometries are incompatible, it will not uninstall.

If the computer hangs during the test or the uninstall fails, reboot and re-enter System Setup. Check to see if the computer uses a setting to indicate that a large drive is present (LARGE, LBA, AUTO and so on). Refer to your computer or BIOS user's guide for assistance on how to configure your computer for drives larger than 528 Mbytes. If no setting is required, try the *As you may need to set in CMOS* translation geometry. If the uninstall fails again, you might try the *As indicated in CMOS* translation geometry. This setting is not precise and may require several iterations with slightly different configurations before one works. It does not yield the full capacity of the drive. We suggest you run FDISK/MBR if *As you may need to set in CMOS* fails.

FDISK/MBR disable

Required materials:

- A bootable diskette
- A diskette that has FDISK. EXE

1. Turn the computer off.
2. Insert a bootable diskette into Drive A and turn the computer on. Your computer must boot to Drive A without loading EZ-Drive into the system memory.
3. When the boot cycle is complete, place a diskette that has the FDISK utility in Drive A.
4. Type **fdisk/mbr** and press ENTER. This command erases the EZ-Drive-modified master boot record on Drive C and replaces it with the standard DOS master boot record. The computer can no longer identify drives that are larger than 528

Mbytes installed using EZ-Drive. You must partition and format the drive to make it accessible (see Partitioning and formatting the drive on page 21).

Disabling Maximum Overdrive

Maximum Overdrive enables the drive's read/write multiple feature. You can disable Maximum Overdrive during the installation process or anytime afterward.

To disable it during the installation, select the Change Install Features option in the Options dialog box that appears when the format completes. This feature allows you to enable or disable Maximum Overdrive.

To disable it after the drive has been installed:

1. Insert the Seagate software diskette with EZ-Drive into the diskette drive.
2. Type **ez** at the command line.
3. Go to the Main menu and select Installation Options. Press ENTER.
4. Select Change Install Features and press ENTER.
5. Select Disable Maximum Overdrive.
6. Press the ENTER key to change the status.
7. Use the down-arrow key to select Save Changes. Press ENTER to save.

Additional EZ-Drive troubleshooting and help information is available when you select Information Help in the main menu. Answers to frequently asked troubleshooting questions are available in the EZ-HELP.EXE file on the diskette.

Technical support services

If you need assistance installing your drive, consult your dealer. Your dealer is familiar with system configurations and can help you with system conflicts and other technical issues.

If you need additional assistance with your Seagate drive or other Seagate products, you can call SeaBOARD™, SeaFAX™, Seagate Technical Support FAX, SeaFONE™ or SeaTDD™. Seagate technical support information is also available on CompuServe and through the Internet.

SeaBOARD

Using a modem, you can access documentation, drive specifications and jumper settings for Seagate's entire product line. You can also download software for installing and analyzing your drive.

SeaBOARD is available 24 hours daily. It supports communications up to 9,600 baud. Set your communications software to eight data bits, no parity and one stop bit (8-N-1). SeaBOARD phone numbers are listed in the following table.

Location	Modem number
United States	408-438-8771
England	44-1-62-847-8011
France	(+33 1) 48 25 35 95
Germany	49-89-140-9331
Singapore	65-292-6973

Location	Modem number
Thailand	662-531-8111
Australia	61-2-756-2359
Korea	82-2-556-7294

SeaFAX

You can use a touch-tone telephone to access Seagate's automated FAX system to receive technical support information by return FAX. This service is available 24 hours daily.

Location	Telephone number
United States	408-438-2620
England	44-1-62-847-7080

Seagate Technical Support FAX. 408/438-8137

You can FAX questions or comments to technical support specialists 24 hours daily. Responses are sent between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday.

SeaFONE. 408/438-8222

You can talk to a technical support specialist between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday. SeaFONE provides recorded technical information on selected Seagate products while you are on hold. You can access the recordings 24 hours daily. Before calling, note your system configuration and drive model number (ST*xxxx*).

SeaTDD. 408/438-5382

Using a telecommunications device for the deaf (TDD), you can send questions or comments 24 hours daily and exchange messages with a technical support specialist between 8:00 A.M. and 5:00 P.M. (Pacific time) Monday through Friday.

Seagate CompuServe forum

Online technical support for Seagate products is available on CompuServe. To access our technical support forum, type **go seagate**. This forum provides information similar to that found on SeaBOARD.

Seagate's Internet connections

Technical information for Seagate drives is available on the internet from Seagate's World Wide Web home page (http://www.seagate.com) or Seagate's ftp server (ftp://ftp.seagate.com). The ftp server contains information similar to that found on SeaBOARD.

Seagate Technology, Inc.
920 Disc Drive, Scotts Valley, CA 95066, USA

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